

State of West Virginia
Department of Environmental Protection - Office of Oil and Gas
Well Operator's Report of Well Work

API 47-061-01758 County Monongalia District Clay
Quad Blacksville Pad Name MEPCO Field/Pool Name _____
Farm name MEPCO, LLC Well Number MEPCO 7H
Operator (as registered with the OOG) Northeast Natural Energy LLC
Address 707 Virginia Street E., Suite 1200 City Charleston State WV Zip 25301

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing 4390698.3 Easting 572693.4
Landing Point of Curve Northing 4390458.9 Easting 572248.3
Bottom Hole Northing 4392792.4 Easting 570417.0

Elevation (ft) 1,420' GL Type of Well New Existing Type of Report Interim Final
Permit Type Deviated Horizontal Horizontal 6A Vertical Depth Type Deep Shallow
Type of Operation Convert Deepen Drill Plug Back Redrilling Rework Stimulate
Well Type Brine Disposal CBM Gas Oil Secondary Recovery Solution Mining Storage Other _____
Type of Completion Single Multiple Fluids Produced Brine Gas NGL Oil Other _____
Drilled with Cable Rotary

Drilling Media Surface hole Air Mud Fresh Water Intermediate hole Air Mud Fresh Water Brine
Production hole Air Mud Fresh Water Brine

Mud Type(s) and Additive(s)
Synthetic Based Mud - Horizontal Section: BIO-BASE 365, CALCIUM CHLORIDE POWDER, G-SEAL PLUS, HRP, LIME, M-I WATE (BARITE),
M-I-X II MEDIUM, MEGADRIL P SYSTEM, MEGADRIL P SYSTEM RENTAL, MEGAMUL, SAFE-CARB 250, VERSATHIN HF, VERSAWET, VG-PLUS, VINSEAL MEDIUM, WALNUT NUT PLUG MEDIUM

Date permit issued 11/29/2017 Date drilling commenced 03/01/2018 Date drilling ceased 7/16/2018
Date completion activities began 11/7/2018 Date completion activities ceased 12/2/2018
Verbal plugging (Y/N) N Date permission granted NA Granted by NA RECEIVED
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Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug SEP 9 2019

Freshwater depth(s) ft 906' Open mine(s) (Y/N) depths _____ WV Department of
Salt water depth(s) ft 2027', 2250', 2460' Void(s) encountered (Y/N) depths N Environmental Protection
Coal depth(s) ft 848', 930' Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

Reviewed

Reviewed by: MSK 10/28/2019

API 47-061 - 01758 Farm name MEPCO, LLC Well number MEPCO 7H

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/ N) * Provide details below*
Conductor	30"	24"	40'	N	N/A	N/A	Grouted In
Surface	17-1/2"	13-3/8"	1,385'	N	54.5	N/A	Y, 45 bbl
Coal							
Intermediate 1	12-1/4"	9-5/8"	2,468'	N	40	N/A	Y, 20 bbl
Intermediate 2							
Intermediate 3							
Production	8-3/4"	5-1/2"	18,859'	N	20	N/A	N, 2,880'
Tubing	N/A	2-7/8"		N		N/A	
Packer type and depth set							

Comment Details _____

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft ³ /sks)	Volume (ft ³)	Cement Top (MD)	WOC (hrs)
Conductor	4,500 PSI Grout	-	-	3 Yds	-	CTS	-
Surface	Class A + 2%	1137	15.6	1.19	1353	CTS	8
Coal							
Intermediate 1	Class A + 1%	805	15.6	1.19	955	CTS	8
Intermediate 2							
Intermediate 3							
Production	50:50 Class A + Additives	3580	14.5	1.16	4147	2,880'	48
Tubing							

Drillers TD (ft) 18,866' Loggers TD (ft) 18,836'

Deepest formation penetrated Marcellus Plug back to (ft) NA

Plug back procedure NA

Kick off depth (ft) 6,292'

Check all wireline logs run caliper density deviated/directional induction
 neutron resistivity gamma ray temperature sonic

Well cored Yes No Conventional Sidewall Were cuttings collected Yes No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING _____

Surface: Bow spring centralizers every 3rd joint or approximately 120'
Intermediate: Bow spring centralizers every 3rd joint or approximately 120'
Production: Rigid body centralizers placed at a minimum of every other joint (~80') from TD to surface

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WAS WELL COMPLETED AS SHOT HOLE Yes No DETAILS _____

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WAS WELL COMPLETED OPEN HOLE? Yes No DETAILS _____

WERE TRACERS USED Yes No TYPE OF TRACER(S) USED _____

API 47-061 - 01758 Farm name MEPCO, LLC Well number MEPCO 7H

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
			Please	See	Attachment

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

Stage No.	Stimulations Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
						Please	See	Attachment
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Please insert additional pages as applicable.

API 47- 061 - 01758 Farm name MEPCO, LLC Well number MEPCO 7H

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>		
<u>Marcellus</u>	<u>7890'</u>	<u>TVD</u>	<u>18,866'</u> <u>MD</u>
_____	_____	_____	_____
_____	_____	_____	_____

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface 2199 psi Bottom Hole 3750 psi DURATION OF TEST 48 hrs

OPEN FLOW Gas 1306 mcfpd Oil _____ bpd NGL _____ bpd Water _____ bpd GAS MEASURED BY Estimated Orifice Pilot

<u>LITHOLOGY/ FORMATION</u>	<u>TOP</u>	<u>BOTTOM</u>	<u>TOP</u>	<u>BOTTOM</u>	<u>DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H₂S, ETC)</u>
	<u>DEPTH IN FT NAME TVD</u>	<u>DEPTH IN FT TVD</u>	<u>DEPTH IN FT MD</u>	<u>DEPTH IN FT MD</u>	
	<u>0</u>		<u>0</u>		<u>Please See Attachment</u>

Please insert additional pages as applicable.

Drilling Contractor Highlands
Address 900 Virginia Street E. City Charleston State WV Zip 25301

Logging Company Baker Hughes
Address 837 Philippi Pike City Clarksburg State WV Zip 26301

Cementing Company C&J Energy Services
Address 8600 Rt 119N City Black Lick State PA Zip 15716

Stimulating Company Producers Service Corporation
Address 109 Graham St. City Zanesville State OH Zip 43701

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Please insert additional pages as applicable.

Completed by Hollie Medley Telephone 304-212-0422
Signature Title Regulatory Manager Date 08/08/2019 WV Department of Environmental Protection

Lithology/Formation	Top Depth in FT TVD	Bottom Depth in FT TVD	Describe rock type and record quantity and type of fluid (freshwater, brine, oil, gas, H2S, etc)
Shale/Sand	0	384	Shale/Sand
Shale	384	400	Shale
sand/shale	400	466	sand/shale
shale	466	470	shale
Sandstone/shale/coal	470	570	Sandstone/shale/coal
sand/shale	570	848	sand/shale
coal	848	853	coal
sand/shale	853	930	sand/shale
coal	930	933	sandstone/shale/coal - water @ 906'
sand/shale	933	1214	sand/shale
shale/red rock	1214	1651	shale/red rock
sand/shale	1651	2010	sand/shale
red rock	2010	2110	red rock
Big Lime	2110	2248	Big Lime
Big Injun	2248	2370	Big Injun
siltstone	2370	2430	siltstone
Berea	2430	2450	Berea
siltstone	2450	2610	siltstone
Gantz	2610	2630	Gantz
Upper Devonian undifferentiated	2630	2920	Upper Devonian undifferentiated
red rock/siltstone	2920	3080	red rock/siltstone
Devonian silt/sand/shale	3080	7290	Devonian silt/sand/shale
Middlesex	7290	7530	Middlesex
Burkett	7530	7710	Burkett
Geneseo	7710	7770	Geneseo
Tully	7710	7830	Tully
Hamilton	7830	7890	Hamilton
Marcellus	7890	8082	Marcellus
Onondaga	8082	8114	Onondaga
Huntersville chert	8114		Huntersville chert

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MEPCO 7H PERFORATION RECORD				
Stage Number	Report Date	Cluster 5 Bottom TD	Cluster 1 Top TD	Total Shots
1	11/6/2018	18,722	-	-
2	11/7/2018	18,518	18,677	40
3	11/7/2018	18,317	18,476	40
4	11/8/2018	18,115	18,274	40
5	11/9/2018	17,914	18,073	40
6	11/9/2018	17,713	17,872	40
7	11/10/2018	17,511	17,670	40
8	11/11/2018	17,310	17,469	40
9	11/11/2018	17,109	17,212	40
10	11/12/2018	16,907	17,066	40
11	11/12/2018	16,706	16,865	40
12	11/13/2018	16,504	16,664	40
13	11/13/2018	16,303	16,462	40
14	11/14/2018	16,102	16,261	40
15	11/14/2018	15,900	16,060	40
16	11/15/2018	15,699	15,858	40
17	11/17/2018	15,498	15,657	40
18	11/17/2018	15,296	15,456	40
19	11/18/2018	15,095	15,254	40
20	11/18/2018	14,894	15,053	40
21	11/19/2018	14,692	14,852	40
22	11/19/2018	14,491	14,650	40
23	11/19/2018	14,290	14,449	40
24	11/20/2018	14,088	14,248	40
25	11/20/2018	13,887	14,046	40
26	11/21/2018	13,686	13,845	40
27	11/21/2018	13,484	13,644	40
28	11/22/2018	13,283	13,442	40
29	11/22/2018	13,082	13,241	40
30	11/22/2018	12,880	13,039	40
31	11/23/2018	12,679	12,838	40
32	11/23/2018	12,478	12,637	40
33	11/24/2018	12,276	12,435	40
34	11/24/2018	12,075	12,234	40
35	11/25/2018	11,874	12,033	40
36	11/25/2018	11,672	11,831	40
37	11/26/2018	11,471	11,630	40
38	11/26/2018	11,270	11,429	40
39	11/27/2018	11,068	11,227	40
40	11/27/2018	10,867	11,026	40
41	11/28/2018	10,666	10,825	40
42	11/28/2018	10,464	10,623	40
43	11/29/2018	10,263	10,422	40
44	11/30/2018	10,062	10,221	40
45	11/30/2018	9,860	10,019	40
46	11/30/2018	9,659	9,818	40
47	12/1/2018	9,458	9,617	40
48	12/1/2018	9,256	9,415	40
49	12/2/2018	9,055	9,214	40

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MEPCO 7H STIMULATION INFORMATION

Stage Number	Report Date	Avg Treating Rate (BPM)	Avg Treating Pressure (psi)	Breakdown Pressure (psi)	ISIP (psi)	Total Proppant Amount (lbs)	Flush Volume (bbls)	Total Clean Fluid (Bbls)
1	11/6/2018	75	8,936	7,405	5,086	305,440	420	7,153
2	11/7/2018	82	9,618	7,642	5,878	400,160	415	8,289
3	11/7/2018	78	9,831	7,973	5,652	402,690	410	9,424
4	11/8/2018	80	10,179	8,218	5,926	400,110	405	8,333
5	11/9/2018	80	9,923	7,703	5,219	401,680	401	8,746
6	11/9/2018	80	9,973	8,496	5,624	401,140	400	8,353
7	11/10/2018	80	10,123	7,887	5,846	401,040	392	8,683
8	11/11/2018	74	10,060	7,906	5,745	401,680	390	6,388
9	11/11/2018	78	10,031	9,008	5,510	402,880	385	8,499
10	11/12/2018	81	9,082	8,630	5,579	401,245	380	8,235
11	11/12/2018	77	9,901	8,443	6,112	400,320	374	8,238
12	11/13/2018	81	9,971	7,818	6,308	388,240	430	8,313
13	11/13/2018	80	9,879	7,717	6,315	404,310	368	9,472
14	11/14/2018	80	9,984	7,150	6,110	401,188	365	8,552
15	11/14/2018	80	9,900	7,644	5,397	401,040	358	8,647
16	11/15/2018	76	9,921	8,465	5,640	400,460	353	8,024
17	11/17/2018	80	9,573	7,760	6,332	400,080	346	7,776
18	11/17/2018	83	9,605	7,086	6,259	397,320	344	9,450
19	11/18/2018	82	9,726	7,495	6,345	401,420	339	8,349
20	11/18/2018	81	9,613	8,153	5,774	404,140	338	8,215
21	11/19/2018	81	9,635	8,119	5,928	356,510	329	7,951
22	11/19/2018	81	9,401	7,689	6,569	401,960	325	8,378
23	11/19/2018	80	9,974	8,010	4,984	400,760	343	8,313
24	11/20/2018	80	9,620	7,929	5,392	398,480	316	8,695
25	11/20/2018	83	9,848	8,209	5,195	405,360	318	8,476
26	11/21/2018	80	9,282	7,931	5,510	400,240	307	8,457
27	11/21/2018	83	9,753	8,440	5,276	400,060	308	8,578
28	11/22/2018	83	9,676	7,676	5,018	401,620	304	7,811
29	11/22/2018	80	9,780	8,100	5,563	400,020	296	9,079
30	11/22/2018	80	9,501	8,138	5,262	400,630	291	8,478
31	11/23/2018	75	9,454	7,810	5,097	400,350	284	8,065
32	11/23/2018	78	9,227	8,251	5,083	400,940	278	8,544
33	11/24/2018	80	9,182	8,701	5,150	400,080	272	8,459
34	11/24/2018	79	9,271	8,589	5,444	401,500	270	8,552
35	11/25/2018	76	9,550	8,203	4,945	400,320	267	7,947
36	11/25/2018	79	9,359	8,419	5,148	404,520	262	8,440
37	11/26/2018	84	8,985	7,195	4,931	400,590	257	8,375
38	11/26/2018	84	8,854	8,270	5,072	404,940	252	8,220
39	11/27/2018	84	9,016	7,173	4,893	399,840	258	8,333
40	11/27/2018	85	8,831	7,231	5,056	400,060	244	8,289
41	11/28/2018	86	8,871	7,604	4,957	399,820	245	7,847
42	11/28/2018	84	8,787	7,417	5,191	402,590	236	8,969
43	11/29/2018	86	8,942	7,254	5,050	404,440	231	8,538
44	11/30/2018	83	8,457	8,028	4,876	400,040	230	7,809
45	11/30/2018	84	8,623	7,504	4,857	400,020	222	8,575
46	11/30/2018	84	8,597	8,555	5,519	399,060	220	7,785
47	12/1/2018	85	8,587	8,321	5,971	400,380	213	8,236
48	12/1/2018	86	8,599	7,818	5,058	401,760	208	7,767
49	12/2/2018	86	8,630	8,332	5,509	399,260	209	7,615

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API Permit #: 47-061-01758

Customer: Northeast Natural Energy

Lease and Well Name: Mepco #7H

A.F.E #: 100374-602



Job Type: 13 3/8"

Cement Operator: Harry Braddee

Date Cemented: 3/3/2018

Drilling Contractor: Highlands #8

Cement Slurry Information										
No. of Sacks	Cement Blend Composition			Yield (ft³/sk)	Mix Water (gal/sk)	Density (lb/gal)	(bbl) Mix Water	(ft³) Of Slurry	(bbl) Of Slurry	
1137	Class A +2% Calcium+.25#/sk Flake			1.19	5.20	15.6	141	1353	241	
							Totals	141	1353	241

Wellbore Information									
	New/Used	Diameter (in)	Weight (lb/ft)	Top (ft)	Bottom (ft)	Collapse/Burst Pressures (psi)		Requested TOC (ft)	Surface
Casing	New	13 3/8	54.5	0'	1385'			TVD (ft)	1,424
Previous Casing	New	24	106.5	0'	40'				
Displacement Depth (ft)									1,385
Displacement (bbl)									214.1

Pumping Returns		Cement Slurry Temperature Record (°F)				Fluid Information		
Spacer or Gel Sweep Return Seen At Surface	Yes	Cement Blend 1	Reading 1	Reading 2	Reading 3	Average	Mix Water Temp (°F)	47
Cement Returns Seen at Surface	Yes	Blend 2	65	65	65	65	Displacement Fluid Type	Water
Amount of Cement Returns (BBL)	45	Blend 3					Displacement Fluid Temp (°F)	47
							Displacement Fluid Density (lb/gal)	8.3

Time	Rate (bpm)	Volume (bbl)	Pressure (psi)	Event or Stage Description
0315				Arrive on Location
0452				Spot Trucks, Rig in
0520				Hold Safety Meeting
0539				Start Pumping Casing Down
0711	5	403	590	Rig Pulled Casing Out and Set Landing Joint In Place
0831	3	3	31	Pump Fresh Water
0834			420	Test Opsd
0836			2740	Test Lines
0845	6.5	25	155	Pump Gel
0847	6.5	10	150	Pump Fresh Water
0927	6.5	248	356	Mix and Pump Tail Cement
1013	7	205	550 - 836	Sddp, Displace w/ Processed Water & Fresh Plug Lands
1016		1		Released Psi, Floats Held
1100				Wash Up, Rack Out
1130				Leave Location

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Comments:

Hole Circulated @370 bbl pf Processed H2O
45 bbl Cement return to surface
Floats held
Per Co.man Rig Up bulk trucks and Load cement head Before Pumping fluid to wash down casing
Job Done per Co.man

Thank You for your Business

UWS Cement Operator Signature:

Harry Braddee

Customer Representative Signature:

Northeast Energy
 Mepco 7H
 Surface
 3/4/2018

Rig: X



Job Data

Job Type	Surface
Previous Casing	13.375" 54.5# to 1385'
Hole Size	12.25" to 2500'
Casing Size/Weight	9.625" 40# BTC to 2500'
MD	2500
TVD	2500
Mud	Air Mist
Est. BHST/BHCT	88-F BHST / 72-F BHCT (1.1-F/100-ft)

Volumes

	Length (ft)	OD (in)	ID (in)	Excess (%)	CF/FT	Vol. (cf)	Vol. (bbl)
Primary	1385	12.615	9.625	0%	0.3627	502.3	89.5
Primary	1115	12.250	9.625	30%	0.4071	454.0	80.8
Shoe Joint	40		8.835		0.42572	17.0	3.0

Fluid Requirements

Spacer

Component Detail	25 bbl gel spacer
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Primary

Component Detail	100% Class A 1% CaCl2 0.2% X-Air 0.25#/sx Cello Flake	
Volume (sx)	805	171 (bbls)
Weight (ppg)	15.60	
Yield (cf/sx)	1.19	
Water (gps)	5.23	
Top of Cement (ft)	0	
Excess (%)	30%	

Displacement

Component Detail	183.9 bbls displacement fluid (supplied by rig)
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CEMENT JOB LOG

Customer Northeast Energy		Date: 03/05/2018	Invoice #: FP002351	Serv. Supervisor: GRANT HUGHES								
Lease: Mepco 7H		Permit # 47-061-01758		County and State: Morgantown, WV								
District: FENELTON, PA.		Rig: HIGHLANDS # 8		Type of Job: Surface Cement								
Employees & Units on Job Site:			GRANT HUGHES (Supe) 530282		JAY SUMMERVILLE (Pump) 880070 980039							
BILL WRIGHT (Pump)			LONE WOLF (Bulk) 880131 920081		JOE WRIGHT (Bulk) 880136 920086							
Plugs		Casing Hardware		Physical Slurry Properties								
				Sacks of Cement	Slurry Wt. PPG	Slurry Yield Cuft.	Water GPS	Slurry Bbls..	Mix Water Bbls..			
Materials Furnished by OTEX Pumping												
Spacer 1:	Gel							25bbl				
Spacer 2:	0							0				
Tail	Class A 1% CaCl2 + 0.2% X-Air + 0.25# Cello Flake			805	15.60	1.19	5.23	170.61	100.24			
0				0	0	0	0	0.00	0.00			
0				0	0	0	0	0.00	0.00			
0				0	0	0	0	0.00	0.00			
EXPECTED RETURNS:		18										
HOLE			TUBING - CASING - DRILL PIPE				COLLAR DEPTHS					
SIZE	% EXCESS	DEPTH	SIZE	WGT	TYPE	DEPTH	GRADE	ID	SHOE	FLOAT	STAGE	
12.25 in.	30 %	2500 ft.	9.625	40 #/ft.		2468 ft.	0	25.35		2422		
LAST CASING			PKR / CMT RET / LINER PKR			PERF DEPTH		TOP CONN		WELL FLUID		
SIZE	ID	DEPTH	BRAND / TYPE			DEPTH	TOP	BTM	SIZE	THREAD	TYPE	WGT
13 3/8		1385							9.625		0	ppg
DISPL VOLUME		DISPL FLUID		CAL PSI	PUMP OUT	MAX TUBING PRES		MAX CSG PRESSURE				
VOLUME	UOM	TYPE	WGT	BMP PLUG	PSI	RATED	WORKING	RATED	WORKING	MIX WATER		
183.6	BBL	H2O	8.33	915	1185							
Time Hrs.	Rate	Pressure	Bbls.. Pumped	Fluid Type	Time Left Yard		Time Left Loc.					
					Time on Loc.							
1:55 A.M.					PRE-CONVOY MEETING							
2:15 A.M.					LEAVE YARD							
6:00 A.M.					ARRIVED ON LOCATION							
6:20 A.M.					PRE-RIG UP MEETING							
6:35 A.M.					RAN WATER HOSES AND UNLOADED CONTAINMENT							
7:00 A.M.					WAIT FOR RIG TO RUN CASING AND MOVE PIPE RACK							
9:00 A.M.					SPOT UNITS AND SET UP							
10:30 A.M.					SAFETY MEETING							
11:03 A.M.	2.5	0-76	5	RECYCLE	PUMP WATER							
11:05 A.M.		2,800			PRESSURE TEST PUMPS AND LINES							
11:08 A.M.	6	0-280	140	RECYCLED	PUMP WATER TO LOAD CASING							
11:31 A.M.	5	80-120	10	FRESH	PUMP WATER							
11:33 A.M.	5	60-120	25	FRESH H2O	MIX AND PUMP GEL							
11:38 A.M.	5	40-80	10	FRESH	PUMP WATER							
11:40 A.M.					BATCH MIX CEMENT @ 15.6 PPG. AND VERIFIED WITH PSI SCALES							
11:48 P.M.	4.7	0-420	171	805 SXS	MIX AND PUMP CEMENT @ 15.6 PPG.							
12:24 P.M.					DROPPED NORTHEAST ENERGY RUBBER PLUG							
12:24 A.M.	5.3	0-970	183	RECYCLED	PUMP WATER DISPLACEMENT							
12:58 P.M.		975 - 1,477			BUMP PLUG + 500 PSI							
1:03 P.M.					RELEASED PRESSURE ON WELL AND CHECKED FLOAT							
					FLOAT HELD 1 BBL. BACK							
1:10 P.M.					KNOCK OFF, WASH UP AND RACKED UP							
1:40 P.M.					POST JOB SAFETY MEETING		RECEIVED					
2:00 P.M.					JOB COMPLETE		Office of Oil and Gas					
					H2O TEMP. - 37* PH - 7 SULF. - < 200 CHLOR. - <100		SEP 9 2019					
					SLURRY TEMP. - 55*		WV Department of					
					20 BBLs. CEMENT BACK TO SURFACE		Environmental Protection					
Bumped Plug	Final Lift Pressure	Floats Held	PSI Left On Casing	Cement To Surface	Total Circulation	<i>Grant Hughes</i>						
YES	975	YES	0	20 Bbls..	249	Service Supervisor						

Customer: NORTHEAST NATURAL ENERGY LLC	Date: 7/16/2018	Serv. Supervisor: Jason Beeson
Cust. Rep.: ross	Ticket #: JWV1807-0031	Serv. Center: Jane Lew, WV
Lease: Mepco 7H	API Well #:	County: Monongalia State: West Virginia
Well Type:	Rig: Patterson 334	Type of Job: Production Casing

Materials Furnished by C&J ENERGY SERVICES

Plugs	Casing Hardware	Physical Slurry Properties					
		Sacks of Cement	Fluid Dens (lb/gal)	Yield (cuft/sk)	Mix Water (gal/sk)	Fluid Volume (bbls)	Mix Water (bbls)
Spacer 1:	CJ810 PureScrub Spacer + 1 gal/bbl CPC35	-	13.5			100	
Lead							
Tail:	50:50 CJ010:CJ910 + 0.25% CJ210F + 0.1% CJ501 + 0.2% CJ504 + 0.2% CJX157011	3580	14.5	1.16	4.91	738	418

OPEN HOLE DATA			TUBULAR DATA								
SIZE (in)	EXCESS (%)	DEPTH (ft)	TYPE (CSG/TBG/DP)	OD (in)	WEIGHT (lbs/ft)	THREAD	DEPTH (ft)	GRADE	ID (in)	BURST (psi)	COLLAPSE (psi)
8 3/4		6402	Casing	5 1/2	20		18859		4.79		
8 1/2		18866									

PREVIOUS CASING DATA				PERFORATED INTERVAL DATA				CASING EQUIPMENT DEPTHS			
SIZE (in)	WEIGHT (lbs/ft)	ID (in)	DEPTH (ft)	TOP	BTM	SPF	SIZE	SHOE	FLOAT	STAGE	ACP
9 5/8	40	8.84	2425					25	18834		

WELL FLUID		DISPLACEMENT FLUID (STG 1)			DISPLACEMENT FLUID (STG 2)			WATER ON LOC (bbl)	DIFF PRESS (psi)	CSG LIFT (psi)	MAX PRESS (psi)
TYPE	DENSITY	VOLUME	TYPE	DENSITY	VOLUME	TYPE	DENSITY				
		416 bbl	fresh	8.3 ppg				2000	2594	6817	6000

Time	Rate (bbl/min)	Csg. Press. (psi)	Tbg. Press. (psi)	Ann. Press. (psi)	Stg. Vol. (bbl)	Cum. Vol. (bbl)	Stage Details
5:00 AM							0 arrived on location
5:30 AM							0 spot trucks rig up
10:30 AM							0 safety meeting
10:45 AM							0 load bottom plug rig up head
11:00 AM							0 launch bottom plug psi test @ 6000
11:15 AM							0 pre load latch plug
11:24 AM	5.5	1144			100	100	spacer slurry @ 13.5 ppg
11:46 AM	6.2	1319			739	839	tail slurry @ 14.5 ppg
11:56 AM	8.5	1766				839	tail slurry @ 14.5 ppg
12:34 PM	7	2250				839	tail slurry @ 14.5 ppg
1:03 PM	7	2627				839	tail slurry @ 14.5 ppg
1:28 PM						839	shut down wash lines
1:31 PM	4.4	2000			416	1255	drop plug displace
1:38 PM	8	3143				1255	displace
2:08 PM						1255	shut down fix leak on cement head @ 280 bbl
2:10 PM	5.8	5300				1255	displacement
2:20 PM	5	5439				1255	lost circulation @ 330 bbl
2:43 PM	5	5196				1255	displacement
2:49 PM	3.6	4700				1255	slow rate
2:54 PM		5974				1255	plug down
3:00 PM		6030				1255	float held 8 bbl returned
						1255	
						1255	
						1255	

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Office of Oil and Gas

Left Yard	7/16/18 1:00 AM	Left Loc.	7/16/18 4:00 PM	Start Pump	7/16/18 11:24 AM				
Arrived Loc.	7/16/18 4:00 AM	Returned Yd		End Pump	7/16/18 3:00 PM				
Bumped Plug (psi)	Final Differential (psi)	Floater Held (Y/N)	PSI Left on Casing	Cement to Surface (bbl)	Full Circ. During Job (Y/N)	Max Pump Pressure (psi)	Standby Charged (hrs)	Jason Beeson Service Supervisor	WV Department of Environmental Protection
Yes	4700	Yes	0	0	No	5974	7		

2019

NORTHEAST NATURAL ENERGY, LLC

Location: Monongalia County, WV
 Field: Monongalia
 Facility: MEPCO Pad

Slot: Slot #07
 Well: MEPCO LLC 7H
 Wellbore: MEPCO LLC 7H PWB

Well reference wellbore: MEPCO LLC 7H PWB Rev-A-0	Grid System: NAD83 (Lambert West Virginia SP, Northern Zone (4703), US feet)
True vertical depths are referenced to Patterson 334 (KB)	- = Wellbore was transformed from a different geoidic datum
Patterson 334 (KB) to Mean Sea Level = 1488 feet	North Reference: Grid north
Mean Sea Level to Ground level (At Slot #07) = 1424 feet	Scale: True distance
Coordinates are in feet referenced to SNA	Drawn by: thomazs on 2014/07/18
	Database: WA_PermitSystem



Scale 1 inch = 1500

RECEIVED
Office of Oil and Gas

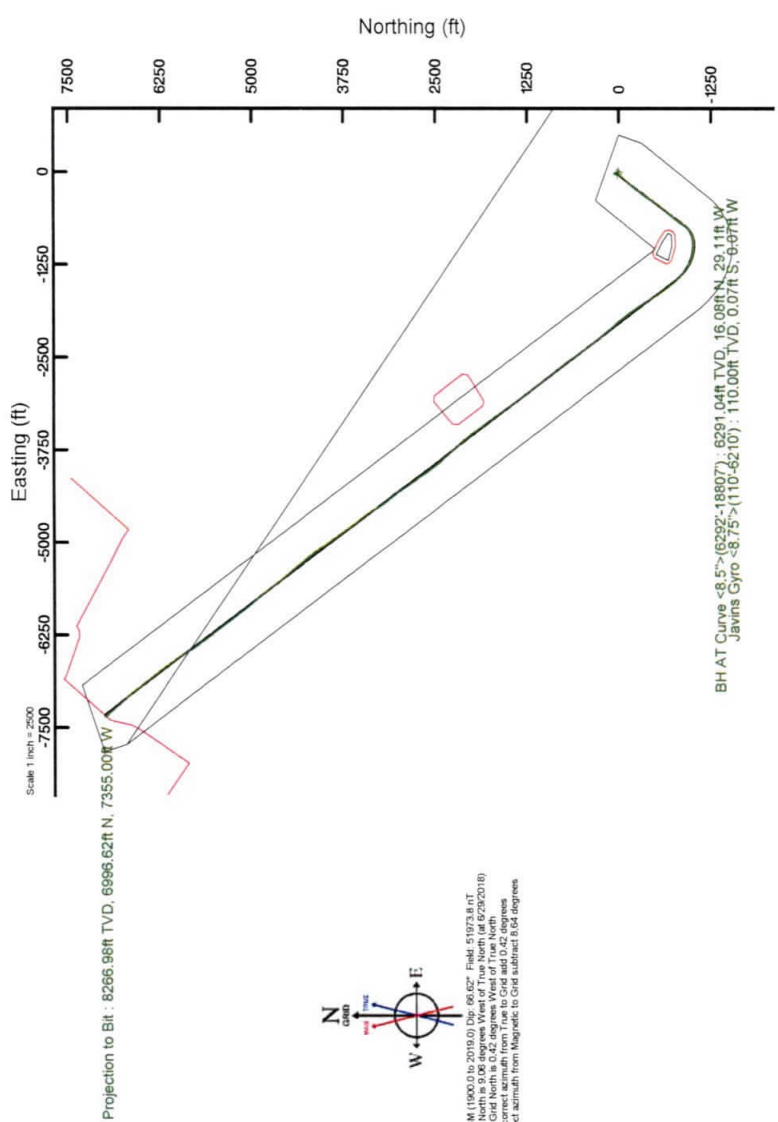
SEP 9 2019

WV Department of
Environmental Protection

Location Information			
Facility Name	Grid East (US ft)	Grid North (US ft)	Longitude
MEPCO Pad	1784821.230	424282.090	80°09'06.866" W
Slot	Local E (ft)	Local N (ft)	Latitude
Slot #07	-13.81	-23.29	39°39'46.823" N
Patterson 334 (KB) to Ground level (At Slot #07)	1784797.940	424266.280	80°09'05.162" W
Mean Sea Level to Ground level (At Slot #07)		25ft	
Patterson 334 (KB) to Mean Sea Level		-1424ft	

Comments

API: 47-061-01758-0000
 BH Job #: 9241872
 Rig: Patterson 334
 Duration: 07/07/2018 - 07/14/2018



Scale 1 inch = 2500

Projection to Bit : 8286.98ft TVD, 6986.62ft N, 7355.00ft W

BH AT Curve $\langle 8.5^\circ \rangle$: 6292.18807ft TVD, 6291.04ft TVD, 16.08ft N, 29.11ft W, Javins Gyro $\langle 8.75^\circ \rangle$: 110.00ft TVD, 0.07ft S, 0.07ft W

Scale 1 inch = 1500

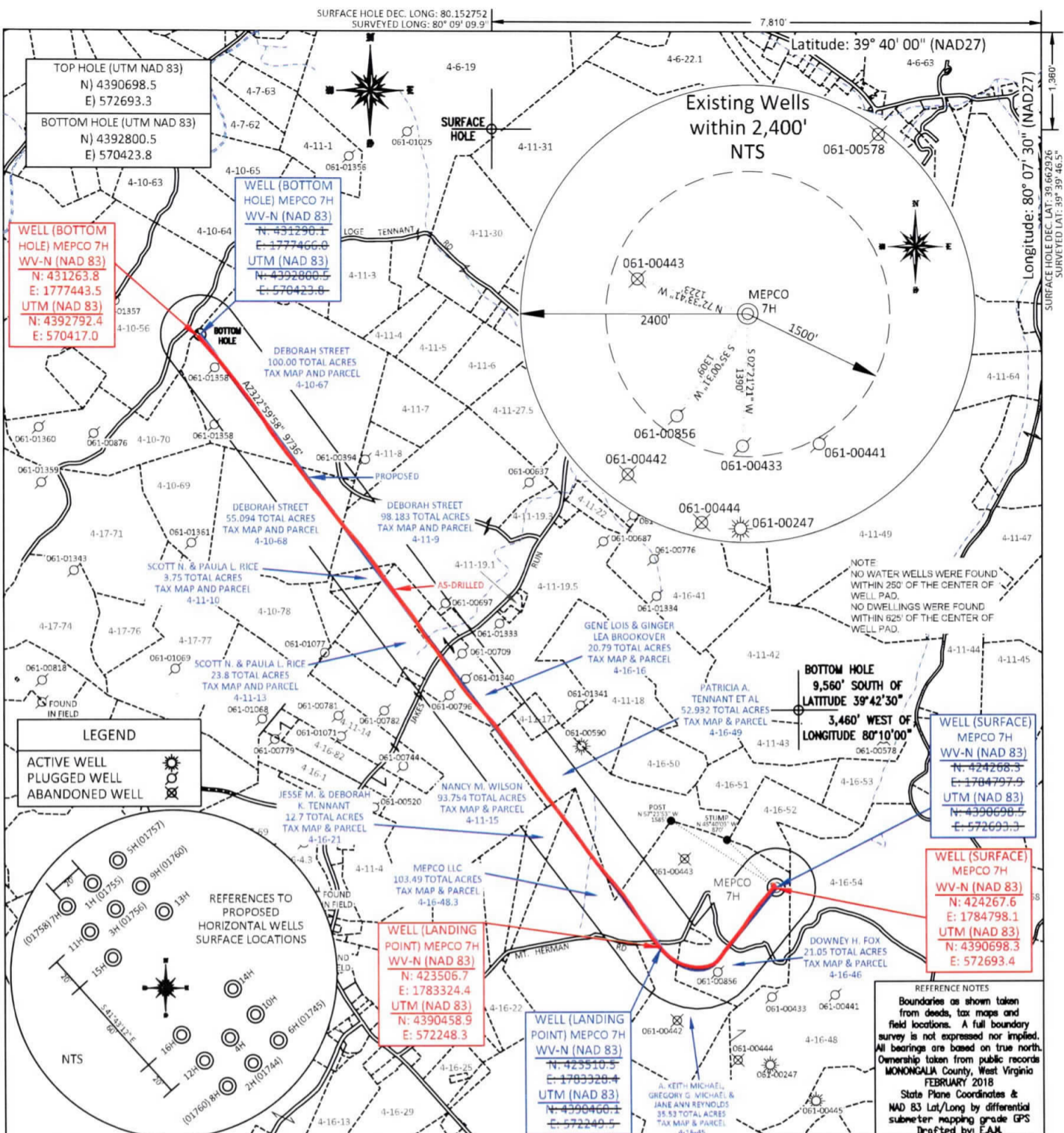
Projection to Bit : 90.40° Inc, 18866.00ft MD, 8266.98ft TVD, 10014.10ft VS

Vertical Section (ft)

Scale 1 inch = 1500

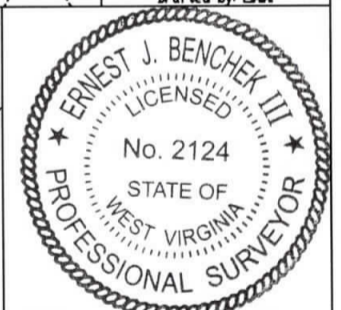
Projection to Bit : 90.40° Inc, 18866.00ft MD, 8266.98ft TVD, 10014.10ft VS

Azimuth: 323.00° with reference 0.00 N, 0.00 E



FILE #: NNE16
 DRAWING #: 2932
 SCALE: PLAT: 1" = 1800'
 TICK: 1" = 2000'
 MINIMUM DEGREE OF ACCURACY: 1/200
 PROVEN SOURCE OF ELEVATION: SUBMETER MAPPING GRADE GPS

I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.
 Signed: [Signature]
 L.L.S. #2124 : Ernest J. Benchek III



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS WVDEP
 OFFICE OF OIL & GAS
 601 57TH STREET
 CHARLESTON, WV 25304
 Well Type: Oil Waste Disposal Production Deep
 Gas Liquid Injection Storage Shallow
 WATERSHED: DUNKARD CREEK
 COUNTY/DISTRICT: MONONGALIA / CLAY
 SURFACE OWNER: MEPCO LLC
 OIL & GAS ROYALTY OWNER: NNE LLC ET AL
 LEASE NUMBERS: _____
 DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE
 PLUG OFF FORMATION PERFORATE NEW FORMATION PLUG & ABANDON
 CLEAN OUT & REPLUG OTHER CHANGE (SPECIFY): _____
 TARGET FORMATION: MARCELLUS
 WELL OPERATOR: NORTHEAST NATURAL ENERGY LLC
 ADDRESS: 707 VIRGINIA STREET EAST, SUITE 1200
 CITY: CHARLESTON STATE: WV ZIP CODE: 25301
 DATE: AUGUST 5, 2019
 OPERATOR'S WELL #: MEPCO 7H (AS-DRILLED)
 API WELL #: 47 61 01758
 STATE COUNTY PERMIT
 AS-BUILT ELEVATION: 1,420.20'
 QUADRANGLE: BLACKSVILLE
 ACREAGE: 103.49 +/-
 ACREAGE: 361.72 +/-
 ESTIMATED DEPTH: TVD: 8,222' TMD: 18,951.92'
 DESIGNATED AGENT: JOHN ADAMS
 ADDRESS: 707 VIRGINIA STREET EAST, SUITE 1200
 CITY: CHARLESTON STATE: WV ZIP CODE: 25301